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# Biotechnology Notes

Volume 4 • Number 7 U.S. Department of Agriculture August 1991

**Biotechnology Notes**, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

## INSIDE USDA

### THE ROAD TO COMMERCIALIZATION

A new idea may be conceived in a flash but usually takes years to develop. Such is often the case in the world of science and technology. For the new agricultural products produced through biotechnology, the journey toward commercialization has been especially challenging because of the wide range of regulatory, environmental, and scientific issues that impact on biotechnology, and because of the wide range of opinions expressed by various sectors of society.

In an on-going effort to provide a forum for free-flow of these ideas and issues, USDA's Animal and Plant Health Inspection Service (APHIS), Biotechnology, Biologics, and Environmental Protection (BBEP) Division, held its Third National Conference on Federal and State Regulation of Biotechnology, July 30-31, in St. Louis, MO. The focus was on the commercial production of transgenic plants.

In his welcoming remarks, BBEP Director Terry Medley said he is "hopeful that regulatory systems will facilitate the safe transfer of the technology to the marketplace, and that these systems will remove uncertainties about oversight." He added that difficult tasks still lay ahead, such as identifying those concerns that need to be addressed and determining what appropriate action, if any, should be taken.

A few of the key areas discussed included the Federal exemption process and the steps involved in preparing a petition. APHIS officials emphasized that states would be asked to comment on petition submissions. The exemption process, it was noted, would also be coordinated with other Federal agencies. Further, an exemption to the regulations could be conditional, depending on any potential for harm to America's agriculture.

Another session focused on herbicide tolerance. Representatives from industry, the Environmental Defense Fund, the Federal government, and state agencies discussed the scientific, environmental, and economic merits of crops genetically modified to resist specific herbicides, as well as the setting of research

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priorities and funding levels for alternative agricultural practices.

Of prime concern at the session on patents was assurance that regulations are compatible with the non-disclosure provisions of the Plant Variety Protection Act and the general utility patents.

Effective communications was the topic addressed primarily by state agricultural officials who met for two days preceding the APHIS portion of the conference. The state regulatory representatives said the communication linkages with their Federal counterparts are working effectively, but that they were concerned about any new Federal legislation that would preempt the states from enacting laws similar to or even more stringent than the Federal regulations. At the conclusion of the meeting, the states passed a resolution to continue to participate in the annual state-Federal conferences, which all agreed provide an effective forum for the exchange of ideas.

## **NEWS AROUND THE NATION (AND THE WORLD)**

### **EPA REGISTERS TWO NEW PESTICIDES**

The Environmental Protection Agency (EPA) issued the first conditional pesticide registrations, June 27, to pesticides derived from biological organisms that have been genetically engineered. M-One Plus Bioinsecticide and MVP Bioinsecticide, both made by Mycogen Corp. of San Diego, will be used to control beetles and caterpillars.

The conditional status of the registration means Mycogen is required to carry out an extensive monitoring program over the next 6 months to ensure that the engineered microorganism -- *Pseudomonas fluorescens* -- is no longer living at the time the pesticide is sold or used.

The pesticides are insect specific, meaning non-target bugs are not affected if they eat the sprayed foliage. The pesticides work by paralyzing the gut of the insect; death occurs about five days later. Based on available data, EPA says it believes that both products will not pose an unreasonable risk to humans, birds, mammals, or other non-target vertebrates. For more details call Al Heier at EPA at 202-382-4374.

### **U.S.-EC TASK FORCE MEETS IN BRUSSELS**

The U.S. - EC (European Communities) Task Force on Biotechnology Research met July 15-16 in Brussels, Belgium, headquarters of the



Commission of the EC. Participants discussed biosafety research, data bases that support biotechnology research, applications of biotechnology to toxicological testing, genome research, training opportunities, public perceptions, and the social and economic impacts of biotechnology. The task force agreed to organize a U.S.-EC workshop for public affairs professionals on improving public understanding of biotechnology, and to form a working group to coordinate databases.

The task force was established in 1990 by Allan Bromley, the President's Science Adviser, and Fillippo Pandolfi, Vice President of the EC. Its mission is to provide a forum where science policy makers may exchange information about biotechnology research. The task force is chaired by Charles Hess, USDA Assistant Secretary for Science and Education, and Paolo Fasella, Director General of DG 12 (Research and Development). The first meeting took place last December at USDA headquarters in Washington, DC.

#### **NORTH CAROLINA A & T CONSIDERS PLANS TO EXPAND CURRICULUM**

In an effort to keep students appraised of the latest developments in agricultural biotechnology, officials at North Carolina A & T's College of Agriculture, Greensboro, NC, are considering a new biotechnology curriculum. As a first step, the university invited Daniel Jones, Deputy Director of USDA's Office of Agricultural Biotechnology (OAB) and James Shuford of Alabama A&M University, to visit the campus and to review the institution's plans for strengthening its biotechnology curriculum within the School of Agriculture.

The plans call for new lecture and laboratory courses as well as a component intended to infuse newer biotech techniques into existing courses in animal and plant science, microbiology, and home economics. According to Jones, the planned curriculum is "well conceived and should adequately serve the needs both of students who need only a working familiarity with biotechnology terminology and those who need hands-on experience with laboratory methods for possible research careers."

#### **DEUTSCHLAND TO HOST NEXT BIOSAFETY SYMPOSIUM**

Building on the success of the first International Symposium on the Biosafety Results of Field Testing of Genetically Modified Plants and Microorganisms that took place last year in Kiawah Island, SC, a second symposium is planned for May 11-14, 1992 in Goslar, Germany. The host will be Germany's Federal Biological Research Center for Agriculture and Forestry. Look for a first announcement and details in the October issue of *Biotechnology Notes*.

## IT'S BACK TO SCHOOL FOR AG SCIENCE TEACHERS

To help bring biotechnology to the classroom, 30 ag science teachers attended a 2-day hands-on biotechnology workshop, July 16-17, at American Cyanamid's agricultural research center in Princeton, NJ. They learned how to prepare tissue cultures from ferns, isolate the plasmid from DNA, and rear tobacco worm moths. Each teacher was given a protocol packet along with information about ordering lesson kits for the classroom.

This is the third summer that American Cyanamid has sponsored the workshop, which includes demonstrations and lectures as well as actual benchwork. To learn more about the program, call either Debbie Selfridge at 609-799-0400, extension 2369, or Frederic Stillwagon at 215-432-0816.

## MIGHTY MITE TO THE RESCUE!

Mites may be small to the eye but their toxin can really pack a punch. A specific female mite toxin has been identified that can paralyze insects 150,000 times larger. In the search for better pesticides, researchers at the University of Georgia used recombinant techniques to put the mite gene for the toxin into the genome of a baculovirus. Baculoviruses are rod-shaped viruses that naturally infect insects. As reported in the July 8, 1991 issue of *Chemical and Engineering News*, baculoviruses containing toxin-producing genes will kill their insect host more quickly and thus reduce the amount of plant damage from hungry pests. The article said insect larvae infected with the modified virus became paralyzed within minutes. Other researchers in Great Britain are also reported to have constructed a recombinant baculovirus that kills specific insects quickly. In that study, the scientists experimented with toxin derived from the scorpion.

## CONGRESSIONAL CAUCUS ON BIOTECHNOLOGY FORMED

An informal bi-partisan caucus has been formed to "promote the U.S. biotechnology industry and preserve America's competitive edge in this growing industry," according to a Congressional press release issued July 16. The co-chairmen include: Sen. Frank Lautenberg (D-NJ), Senator Hank Brown (R-CO), Representative Tom McMillen (D-MD), and Representative Tom Bliley (R-VA). Caucus matters will be coordinated through the office of Congressman Tom Bliley. For more details, call Steve Chase at 202-224-5941.

## GETTING A BANG OUT OF SCIENCE

Scientists at Agracetus Inc. have used particle gun technology to insert a gene for herbicide tolerance into two varieties of rice,



according to the June issue of *BioVenture View*. Subsequent generations carried the gene. Researchers have used the same method to produce insect-resistant cotton hybrids and to improve the quality of cotton fibers. Other crops, including corn and wheat, are also scheduled to take a "hit."

Particle gun technology was originally developed at Cornell University and then licensed to Du Pont in 1980. Du Pont recently granted an exclusive license to Bio-Rad Laboratories for products related to the gun technology.

## **LAND OF THE RISING SUN: BIOTECHNOLOGY IN JAPAN**

This is the second of a two-part series describing agricultural biotechnology in Japan. The information was provided by OAB Director Alvin Young and international affairs specialist Martha Steinbock after their recent visit.

**Field Testing** -- A virus-resistant tomato is the first genetically modified crop to be field tested in Japan. It is being done by government researchers at a specially constructed site in Tsukuba City. Considerable public education preceded the test, which has been carried out without adverse public reaction. Government guidelines require that all experiments go through four stages: laboratory, contained greenhouse, open greenhouse, and contained field facility. Plans are being made to conduct other field tests in one or two years with transformed rice and possibly recombinant microorganisms. Japanese guidelines currently cover only organisms transformed with rDNA.

**International Issues** -- The Japanese Government is very interested in establishing international norms for biosafety. It believes the Organization for Economic Cooperation and Development's Group on National Experts (GNE) on Biosafety in Biotechnology is important in this regard, particularly the GNE's current work on large-scale and food safety issues. The Japanese are interested in working more closely with the United States in biotechnology research areas such as genome analysis and risk assessment. They also will play a role in planning the biosafety symposium that will be held in Germany next year (See "Deutschland to Host Next Biosafety Symposium," page 3).

## **NEW PUBLICATIONS**

■ "World Food Regulation Review." A new monthly publication from BNA International Inc., London, England, a subsidiary of The Bureau of National Affairs Inc. To order call 44-71-222-8831. The FAX number is 44-71-222-5550.

■ USDA's APHIS, BBEP staff has available two new publications: "Questions and Answers on Biotechnology Permits for Genetically Engineered Plants and Microorganisms" and "A User's Guide: Requirements for Exemption of Regulated Articles." Both were published in July 1991 and both are easy-to-read and free of charge. To receive a copy of one or both of them, write to USDA/APHIS/BBEP, Federal Building, Room 844, 6505 Belcrest Road, Hyattsville, MD 20782.

■ The Second Edition of "ATCC Recombinant DNA Materials Catalogue" is off press. Published by the American Type Culture Collection, this 240-page catalogue lists cloning vectors, hosts for transformation, clones from animals and fungi, etc. To order call 301-881-2600 or FAX inquiry to 301-770-2587.

■ USDA's National Agricultural Library (NAL), Beltsville, MD, has added five new Quick Bibliographies to its list of publications: Biotechnology: Legislation and Regulation (QB 91-80), Biotechnology in Human Health and Nutrition (QB 91-97), Biotechnology and Bioremediation (QB 91-106), Biotechnology and Bioethics (QB 91-112), and Biotechnology: Forestry and Forest Products (QB 91-113). In addition, 12 other QB titles have been updated. To order any of these publications, please call NAL's Biotechnology Information Center at 301-344-3340.

■ Texas A&M University's Center for Biotechnology Policy and Ethics, College Station, Texas, has prepared several discussion papers on current biotech topics. To receive copies, call 409-845-5434 or FAX request to 409-847-9372.

■ *Gene-Mapping Techniques and Applications*, edited by L. Schook, H. Lewin, and D. McLaren. Published by Marcel Dekker, Inc., New York, New York, May 1991. To order call 1-800-228-1160; or FAX inquiry to 914-796-1772.

## UPCOMING MEETINGS

**Aug. 13:** "State Government Assistance to Biotech and Start-Up Companies" is the topic of a presentation being given by David Miller, Director of Small Business Development at the Virginia Center for Innovative Technology and by Marvin Rogul, Technology Transfer Representative for the Maryland Office of Technology Development. Washington, DC. Sponsored by the Association of Biotechnology Companies (ABC) Washington Metropolitan Chapter. For details call Richard Okiuye at ABC on 202-234-3330.

**Aug. 13-16:** A workshop on plant biotechnology methods sponsored by the Pennsylvania State University. University Park, PA. Call Eric Loop at 814-863-1740.



**Aug. 16-21:** Ninth International Biotechnology Congress. Crystal City, VA. Sponsored by the American Chemical Society. For details call 202-872-6286.

**Aug. 29-31:** Second International Conference of the Release of Genetically Engineered Microorganisms. University of Nottingham, England. For details write to SGM Meetings Office, 62 London Road, Reading RG1 5AS, United Kingdom.

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**Sept. 16:** The Third Annual Biotechnology Conference. Sponsored by Public Voice for Food and Health Policy. Call Carol Marek for more details at 202-659-5930.

**Sept. 25-27:** The Fifth Forum for Applied Biotechnology. Gent, Belgium. For details call 00-32-050-35-81-31 or FAX inquiry to 00-32-050-36-31-86.

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**Oct. 13-16:** International Marine Biotechnology Conference. Baltimore, MD. Call 703-941-5373 or 415-524-2460.

**Oct. 21-23:** Fourth International Symposium on Biotechnology and Plant Protection. University of Maryland, College Park, MD. Jointly sponsored by the University of Maryland, USDA, and the Monsanto Agricultural Company. The focus will be bacterial pathogenesis and disease resistance of plants. Attendance is limited to the first 200 people who register. For further information, please call either 301-405-1582 or 301-344-3338.

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**Nov. 20-22:** "Bioinformatics in the 90's." Maastricht, The Netherlands. This conference focuses on the use of computer and information technology in biology. For more information write to Bioinformatics Secretariat, Mrs. G. v.d. Linden, Bernhardstraat 33, 7491 EA Delden, The Netherlands; or call 054-07-63716.

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**Biotechnology Notes** is written by Marti Asner, public affairs specialist in USDA's Office of Agricultural Biotechnology. Suggestions for items to include in upcoming issues are always appreciated and may be sent to USDA/OAB, Room 1001, Rosslyn Plaza East, 14th and Independence Ave., S.W., Washington, DC 20250-2200; or call the OAB at 703-235-4419. The OAB FAX number is 703-235-4429.

# 1991 Mid-Year State Legislative Initiatives in Biotechnology: State Funded Programs Supporting Biotechnology

